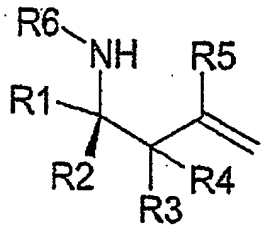
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) An improved method for preparing chiral or enantiomer-enriched beta-amino acids, aldehydes, ketones or gamma-amino alcohols, characterized in that an allylamine of the formula



(I)

in which R1 is an alkyl radical, a cycloalkyl radical, an aryl radical, a heterocyclic radical or a fused or bridged ring system,

R2, R3, R4 and R5 may independently of one another be H or an alkyl radical, a cycloalkyl radical, an aryl radical, a heterocyclic radical or a fused or bridged ring system,

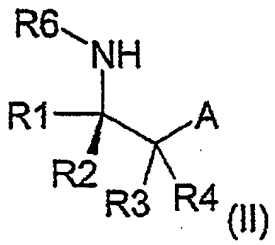
or the radicals R1, R2, R3 and R4 may form ring systems among themselves, which may optionally comprise one or more heteroatoms,

where the radicals R1, R2, R3, R4 and R5 may optionally be substituted one or more times by alkyl, phenyl, halogen, alkyl carboxylate, O-protected hydroxy and hydroxyalkyl groups, and R6 is H or an N-protective group, is converted

a) by ozonolysis in a solvent and

b) subsequent decomposition of the peroxide-containing solution using an oxidizing agent or reductive work-up

into the corresponding amino compound of the formula



(II)

in which R1, R2, R3, R4 and R6 are as defined above,

and A is a radical of the formula -COOH, -C(OH)R5 or -C(O)R5, where R5 is as defined above, depending on the work-up.

2. (original) The method as claimed in claim 1, characterized in that R1 in the formula (I) is a C_1-C_{20}-alkyl radical, a C_3-C_{12}-cycloalkyl radical, a C_5-C_{20}-aryl radical, a C_4-C_{20}-heterocyclic radical or a fused or bridged ring system having 6 to 20 C atoms,

R2, R3, P.4 and R5 may independently of one another be H or a C_1-C_{20}-alkyl radical, a C_3-C_{12}-cycloalkyl radical, a C_5-C_{20}-aryl radical, a C_4-C_{20}-heterocyclic radical or a fused or bridged ring system having 6 to 20 C atoms,

or the radicals R1, R2, R3 and R4 may form C_3-C_{10} ring systems among one another, which may optionally comprise one or more heteroatoms, where the radicals R1, R2, R3, R4 and R5 may optionally be substituted one or more times by C_1-C_4-alkyl, phenyl, halogen, C_1-C_4-alkyl C_1-C_{16}-carboxylate, O-protected hydroxy and hydroxyalkyl groups, and R6 is H or an N-protective group.

3. (original) The method as claimed in claim 1, characterized in that step a) is carried out in a solvent from the group of C_1-C_6-carboxylic acid, water/sulfuric acid mixture, C_1-C_4-alcohol, ethyl acetate or butyl acetate or mixtures thereof.

4. (original) The method as claimed in claim 1, characterized in that the reaction temperature in step a) is from -40°C to +30°C, depending on the chosen solvent.

5. (currently amended) The method as claimed in claim 1, characterized in that the ozonolysis for the allyl of the formula (I) in which ~~R1, R2, R3, R4 and R6 are as defined in claim 1, and~~ R5 is H, is carried out in a C_1-C_6-carboxylic acid or in a

water/sulfuric acid mixture in the ratio from 10:1 to 50:1 as solvent at a temperature of from 0 to 30°C.

6. (original) The method as claimed in claim 5, characterized in that acetic acid or propionic acid is employed as solvent for the ozonolysis.

7. (currently amended) The method as claimed in claim 1 ~~or 2~~, characterized in that if gamma-amino alcohols of the formula (II) with A equal to C(OH)R5 or beta-amino aldehydes or ketones of the formula (II) with A equal to C(O)R5 are the desired final products, the ozonolysis takes place in a C_1-C_6-alcohol or in butyl acetate or ethyl acetate or in mixtures thereof as solvent at a temperature from -40°C to 0°C.

8. (original) The method as claimed in claim 7, characterized in that methanol or butanol is employed as solvent for the ozonolysis.

9. (original) The method as claimed in claim 1, characterized in that an oxidizing agent from the group of H_2O_2, tert-butyl hydroperoxide and oxygen is employed in an amount of from 1 to 10 equivalents for the decomposition of the peroxide-containing solution resulting from step a) by means of an oxidizing agent, and the solution is heated to 25°C to the boiling point of the solvent.

10. (original) The method as claimed in claim 1, characterized in that if beta-amino acids of the formula (II) with A equal to -COOH are the desired final product, the decomposition of the peroxide-containing solution resulting from step a) takes place by means of an oxidizing agent.

11. (currently amended) The method as claimed in claim 1, characterized in that if beta-amino acids of the formula (II) with A equal to -COOH are the desired final product, the ozonolysis ~~takes place as claimed in claim 5~~ is carried out in a C_1-C_6-carboxylic acid or in a water/sulfuric acid mixture in the ratio from 10:1 to 50:1 as solvent at a temperature of from 0 to 30°C, and the work-up of the ozonolysis solution ~~takes place as claimed in claim 9~~ includes an oxidizing agent from the group of H_2O_2, tert-butyl hydroperoxide and oxygen which is employed in an amount of from 1 to 10

equivalents for the decomposition of the peroxide-containing solution resulting from step a), and the solution is heated to 25°C to the boiling point of the solvent.

12. (currently amended) The method as claimed in claim 10 ~~or 11~~, characterized in that after the peroxide decomposition is complete, the solvent/water mixture is distilled off and the beta-amino acid is purified where appropriate by recrystallization or column chromatography.

13. (original) The method as claimed in claim 1, characterized in that in the case where amino alcohols of the formula (II) with A equal to C(OH)R5 are the desired final compounds, a reducing agent from the group of $NaBH_4$ or of the complex hydrides is employed for the reductive work-up in step b).

14. (original) The method as claimed in claim 13, characterized in that $NaBH_4$, (R)-Alpine borane®, L-Selectride® or other complex hydrides with or without chiral ligands are employed as reducing agent.

15. (original) The method as claimed in claim 13, characterized in that from 0.5 to 4 mol of reducing agent are employed per mol of allyl compound of the formula (I).

16. (original) The method as claimed in claim 13, characterized in that after the reductive work-up is complete, the reaction solution is warmed to 10 to 40°C, and 1 to 2 equivalents of water based on the reducing agent, are added in order to decompose excess reducing agent.

17. (original) The method as claimed in claim 13, characterized in that the gamma-amino alcohol is isolated by extraction, with the beta-amino alcohol also being purified where appropriate by recrystallization or column chromatography.

18. (original) The method as claimed in claim 1, characterized in that if beta-amino aldehydes or ketones of the formula (II) with A equal to C(O)R5 are the desired final products, the reductive work-up in step b) takes place with hydrogen in the presence of a hydrogenation catalyst or by reduction with triphenylphosphine, or tributylphosphine, thiourea, organic sulfides or by zinc in acetic acid.

19. (currently amended) The use of the beta-amino acides, aldehydes, ketones or gamma-amino alcohols prepared as claimed in ~~claims 1-18~~ claim 1 as intermediates for pharmaceutical products.